Claims

1. Use of ibezapolstat in the manufacture of a medicament for simultaneously treating a *C. difficile* infection and reducing the likelihood of or preventing the recurrence of *C. difficile* infection, wherein an effective amount of the ibezapolstat:

(i) treats the *C. difficile* infection;

(ii) increases alpha diversity of the subject's gut microbiome compared with baseline; and

(iii) decreases primary bile acid levels and increases the ratio of secondary bile acids to primary bile acids in the subject's gut microbiome.

2. The use of claim 1, wherein the administration of the ibezapolstat is to be continued until a clinical cure of the *C. difficile* infection is achieved or wherein there is no recurrence for 40 to 90 days.

3. The use of claim 1, wherein the administration of the ibezapolstat is to be terminated when a clinical cure of the *C. difficile* infection is achieved.

4. The use of claim 1, wherein the administration of the effective amount of the ibezapolstat reduces the likelihood or prevents recurrence of *C. difficile* infection within 30 days.

5. Use of ibezapolstat in the manufacture of a medicament for treating a *C. difficile* infection, wherein an effective amount of the ibezapolstat is to be administered to a subject suffering from a *C. difficile* infection, wherein the administration of the effective amount of the ibezapolstat results in an increase in the relative abundance of Actinobacteria in the subject's gut microbiome or the proportion of Actinobacteria compared to Proteobacteria is increased, an increased proportion of Bifidobacteriaceae, and maintenance or improvement of microbiome alpha diversity relative to pretreatment baseline, and

wherein total secondary bile acids in the subject's stool is increased.

6. The use of claim 5, wherein the administration of the effective amount of the ibezapolstat results in a different gut microbiome profile compared to administration of vancomycin.

7. The use of claim 6, wherein the amount of the ibezapolstat administered is at least 300 mg and the amount of the vancomycin administered is at least 125 mg.

8. The use of claim 5, wherein the administration of the effective amount of the ibezapolstat is measured by the presence of *C. difficile* toxins in the gut microbiome, wherein efficacy of treatment is determined by both absence of culturable toxigenic C. difficile from stool samples and a decrease in primary bile acids relative to baseline.

9. The use of claim 5, wherein the administration of the effective amount of the ibezapolstat includes an overgrowth of Actinobacteria and Firmicutes phylum species.

10. Use of ibezapolstat in the manufacture of a medicament for reducing the likelihood of *C. difficile* infection and/or preventing the recurrence of *C. difficile* infection in a subject, wherein an effective amount of the ibezapolstat is to be administered to the subject, wherein the administration of the ibezapolstat results in an increase in the relative abundance of Actinobacteria in the subject's gut microbiome or the proportion of Actinobacteria compared to Proteobacteria is increased, and

wherein total secondary bile acids in the subject's stool is increased, and wherein the subject is suffering from a *C. difficile* infection or has previously been diagnosed with and clinically cured of a *C. difficile* infection.

11. The use of claim 10, wherein the prevention of *C. difficile* infection is measured by the proportion of Firmicutes and/or Bacteroidetes to Proteobacteria in the gut microbiome.

12. The use of claim 10, wherein the administration of the ibezapolstat results in a higher relative abundance of Firmcutes and/or Bacteroidetes in the gut microbiome that in the gut microbiome of subjects treated with vancomycin.

13. The use of claim 12, wherein the amount of the ibezapolstat administered is at least 300 mg and the amount of the vancomycin administered is at least 125 mg.

14. Use of ibezapolstat in the manufacture of a medicament for reducing the likelihood of recurrence of *C. difficile* infection in a subject, wherein administration of ibezapolstat decreases primary bile acids and increases the ratio of secondary bile acids to primary bile acids in the gut microbiome of the subject.

15. Use of ibezapolstat in the manufacture of a medicament for reducing the likelihood of recurrence of *Clostridioides difficile* infection in a human subject having a *Clostridioides difficile* infection, wherein administration of an effective amount of ibezapolstat:

(i) increases the relative abundance of Clostridiales taxa that metabolize primary bile acids to secondary bile acids via the 7α-dehydroxylation pathway;

(ii) decreases primary bile acid concentrations in the gut microbiome;

(iii) increases the ratio of secondary bile acids to primary bile acids in the gut microbiome; and

(iv) increases the relative abundance of Firmicutes compared with baseline.

16. The use of claim 1, wherein administration of the ibezapolstat further increases the relative abundance of Actinobacteria in the subject's gut microbiome compared with baseline.

17. The use of claim 1 or claim 2, wherein administration of the ibezapolstat increases the relative abundance of Bifidobacteriaceae in the subject's gut microbiome compared with baseline.

18. The use of any preceding claim, wherein administration of the ibezapolstat increases alpha diversity of the subject's gut microbiome relative to baseline as measured by the Shannon Diversity Index and/or the Inverse Simpson Index.

19. The use of any preceding claim, wherein administration of the ibezapolstat decreases the relative abundance of Proteobacteria compared with microbiome profiles associated with vancomycin treatment.

20. The use of any preceding claim, wherein the subject achieves sustained clinical cure with no recurrence of *Clostridioides difficile* infection within 30 to 90 days after achieving clinical cure.